**Docker Hands-on**

**Main Tasks**

1. Create ubuntu machine and install docker on it.
2. Pull docker images, create containers and destroy them.
3. Create an ubuntu container inside the ubuntu instance and install Apache inside the container.
4. Create and push image to docker hub.
5. Clean up.
6. **Create ubuntu machine and install docker on it.**
7. Create an Ubuntu instance with t2.micro.
8. Connect the instance through Putty.
9. Run the following commands to update the repo list and install docker.

sudo apt update && sudo apt install docker.io -y

1. Check the docker version.

sudo docker --version

sudo docker version

1. **Pull docker images, create containers and destroy them.**
2. Create hello world container.

sudo docker images (List the images)

sudo docker ps -a (List the containers)

sudo docker pull hello-world (pull image)

sudo docker images (Can see hello world image)

Go to hub.docker.com

Search for hello-world

sudo docker run hello-world (running. Container created)

sudo docker ps -a

1. Create ubuntu container.

sudo docker pull ubuntu

sudo docker images

sudo docker run ubuntu

sudo docker ps -a

sudo docker run -t -i ubuntu /bin/bash OR sudo docker run -it ubuntu /bin/bash (with Interactive Terminal and entry point as bash)

exit (out of ubuntu docker)

sudo docker ps -a

1. Start and stop containers.

sudo docker ps -a

sudo docker run -it ubuntu /bin/bash

exit

sudo docker start <<id>> (To start the container)

sudo docker ps -a (see the status)

sudo docker stop <<id>> (To stop the container)

1. Destroy containers and images

sudo docker rm <<container id OR container name OR first letters of ID>>

sudo docker ps -a

sudo docker images

sudo docker rmi <<name OR image id>>

sudo docker run -it ubuntu /bin/bash

exit

sudo docker ps -a

sudo docker run -it ubuntu /bin/bash

sudo docker ps -a

sudo docker rm << both ubuntu>>

1. Removing image while container is running.

sudo docker start <<id>>

sudo docker rmi <<image id>> (wont remove)

sudo docker rm <<container id>> (wont remove)

sudo docker stop <<container id>>

sudo docker rm <<container id>>

sudo docker rmi <<image id>>

1. **Create an ubuntu container inside the ubuntu instance and install Apache inside the container.**
2. Create ubuntu container and install Apache.

sudo docker images

sudo docker run -it -p 80:80 ubuntu /bin/bash

apt update && apt install apache2 -y (sudo not required as we are inside container with root user)

curl localhost:80 (curl not installed)

apt install curl

curl localhost:80 (Apache not started)

systemctl status apache2 (systemctl not installed)

apt install systemctl -y

systemctl status apache2 (Apache not started)

systemctl start apache2

systemctl status apache2

curl localhost:80

1. Go to browser and enter the IP address of the ubuntu machine.
2. **Create and push image to docker hub.**
3. **Delete all docker images** using rmi command.
4. Create an image from code.

git clone <https://github.com/SmithaVerity/CTPDocker.git>

ls

cd CTPDocker/

ls

sudo docker images

sudo docker build -t ctpimage . (The dot is very important as it gives the location of the Dockerfile with instructions to build the image. Tagging it as ctpimage)

sudo docker images

sudo docker run -p 80:80 ctpimage

1. Go to browser and enter the IP address of the ubuntu machine.
2. Type ctrl+c to stop the web application container.
3. Log in to Docker hub and push image.

sudo docker login (Give username and password)

sudo docker tag ctpimage <your username>/ctpimage:v1.0 (create new image with new tag. Naming conv – username/imagename:versionno)

sudo docker images

sudo docker push <your username>/ctpimage:v1.0

1. Open hub.docker.com in the browser. Log in and make sure the image is uploaded.
2. **Clean up.**
3. Terminate the instance.